

A NEW SPECIES OF LIMNIA ROBINEAU-DESVOIDY FROM
WESTERN NORTH AMERICA
(DIPTERA: SCIOMYZIDAE)¹

T. W. Fisher and R. E. Orth²

INTRODUCTION.—An undescribed species of *Limnia* was first encountered from the Santa Catalina Mts. in Arizona, during a survey associated with California Agricultural Experiment Station Project No. 2037, Biological Control of Non-Marine Mollusks. The uniqueness of the new species was confirmed by L. V. Knutson and G. C. Steyskal, Systematic Entomology Laboratory, U.S.D.A. A comprehensive revision of the genus is needed, but probably will not be forthcoming for some time. Accordingly, the following single description, along with illustrations of an occasionally sympatric species, *L. ottawensis* Melander (Melander 1920, 324; Steyskal 1964, 196), is offered as an interim contribution toward a better understanding of the systematics of the genus.

The following description is based on 17 F and 16 M which we have acquired from our own collecting efforts and from institutional collections.

Limnia lemmoni Fisher and Orth, new species

HEAD.—Frons yellow, length and width nearly equal; midfrontal stripe (i.e., brown coloration of frons) 1/5 to 1/3 width of frons, usually widest in females; no shiny flat area in anterior corners³; 2 fronto-orbital bristles, anterior socket sur-

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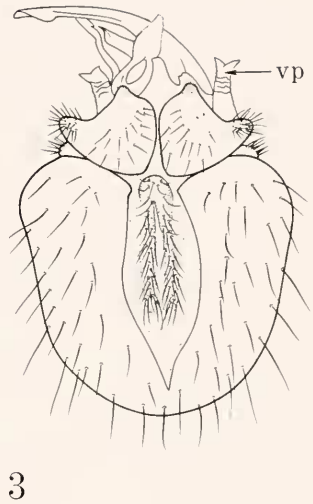
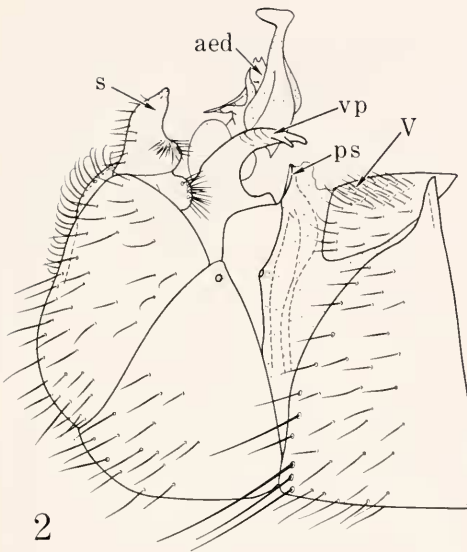
³According to G. C. Steyskal, J. R. Malloch first recognized the usefulness of this character for separating species of *Limnia*; Steyskal, in turn, pointed out the character to us.

rounded by velvety black coloration; ocellars and post-ocellars prominent and of nearly equal length, longer than fronto-orbitals; velvety black patch in anterior corners of frons. Single velvety black patch on occiput immediately posterad of postocellars. Face and gulae whitish; medifacies bare; parafacies with fine black hairs; oral margin of medifacies sometimes with brown discoloration; in lateral profile elevated from lower gular margin; face moderately scooped out. Palpi yellow. Eye large, oval, longer than high, not banded (see Discussion). Antenna: arista with white hairs of moderate length and density, basal segments pale yellow and hirsute; third antennal segment yellowish, usually tinged with black anteriorly, hirsute; second antennal segment approximately same length as third, slightly longer than high from lateral aspect, yellow-ochraceous, usually with darker (brownish) area on dorsal third, usually with 2 strong bristles dorsally and distally, the anterior bristle usually longer and heavier.

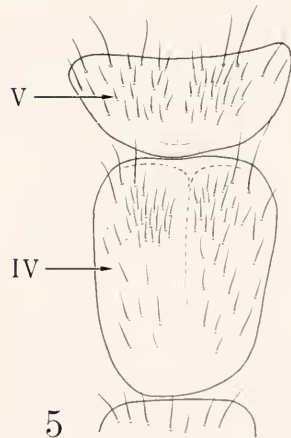
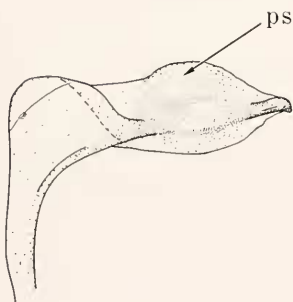
THORAX.—Notum with two narrow brown vittae centrally and single broader discontinuous brown vittae laterad, all separated by dull pruinose vittae; prominent prescutellar and scutellar bristles approximate size of postocellars. Pleura



FIGURE 1. *Linnaia lemmoni* Fisher and Orth, n. sp. Dextral appendages removed. Paratype, male. Arizona, Coconino Co., Oak Creek Canyon, 28 June 1966 (W. L. Westcott, U. I.).



0.4mm



4

5

FIGURES 2-5. *Limnia lemmoni* Fisher and Orth, n. sp. Paratype, male. Arizona, Catalina Mts., Hitchcock Hwy., mi. 27, 12 August 1958 (M. S. Adachi, U. A.). FIG. 2.—Postabdomen, sinistral view, inverted; aed, acedeagus; ps, protandrial sternum; s, surstylus; vp, ventral process of hypandrium; V, 5th sternum. FIG. 3.—Terminalia, posterior view. FIG. 4.—Protandrial sternum. FIG. 5.—Sterna IV and V.

pruinose; pro- and mesopleura brown in upper 1/4 to 1/3; vellar bristles 1 to 5 per side, may be totally lacking on either side. Prosternum with 1 to 8 fine bristles on each side. Legs yellow to brownish; tibiae and tarsi usually darker than femur; coxae pollenose; tarsal segments 3, 4, and 5 may be dark brown; ventral surface of male hind femur with double row of stout spines which receive the tibia when folded; this arrangement lacking in female, all spines weak. Wings: length, females 5.0 mm. to 6.0 mm., males 4.7 mm. to 5.2 mm.; costal border dark brown to 4th vein, fading beyond; 3 to 5 clear areas in marginal cell beyond end of 1st vein not touching costal margin; in dark specimens clear areas in marginal cell may be virtually lacking; posterior crossvein curved outwardly, usually sinuate; halter pale yellow, tipped with brown.

ABDOMEN AND POSTABDOMEN.—Brownish with irregularly defined darker brown vittae, one dorsally and two laterally. Postabdomen as figures 2, 3.

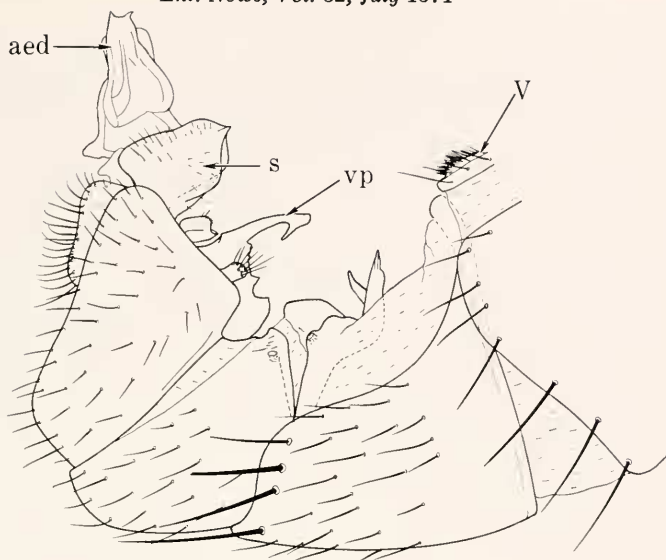
DISTRIBUTION.—ARIZONA. 1 F, 3 M, *Pima Co.*, Catalina Mts., Hitchcock Hwy. mi. 27, 12 August 1958 (M. S. Adachi, U. A.); 1 F, 15 July 1938 (Bryant). *Cochise Co.*, 5 mi. west of Portal, Southwest Research Station, 5400 feet; 1 F, 17 September 1969 (Fisher and Orth); 1 M, 10 September 1966 (P. H. Arnaud, Jr., C.A.S.); 1 F, 1 M, 28/29 July 1968 (J. B. Heppner, C.A.S.). *Pima Co.*, Mt. Lemmon; 3 F, 2 M, Marshall Gulch, 7400 feet; 1 F, Rose Lake, 7000 feet; 5 F, 1 M, Summerhaven, 7750 feet; 20 July 1970 (Fisher and Orth). *Cocconino Co.*, Oak Creek Canyon; 2 F, 6 M, 28 June 1966 (R. L. Westcott, U. I.); 1 F, 15 August 1958 (P. Rude, U.C.B.). NEVADA. 1 M, *Elko Co.*, Ruby Mts., Lamoille, 5500 feet; 17 July 1961 (J. F. Lawrence, U.C.B.). NEW MEXICO. 1 M, 1 F, *Taos Co.*, Arroyo Hondo, Hwy. 3, 7100 feet, 8 August 1970 (R. E. Orth) AS-902. UTAH. 1 M, *San Juan Co.*, Blue Mt., 7000+ feet, 9 July 1963 (G. F. Knowlton, U.C.B.).

All of the foregoing material constitutes the type series, and each specimen (with the exception of the holo- and allotype) is designated a paratype or paratopotype.

TYPE LOCALITY.—Holotype, male, wing 4.8 mm.; U. S. A., ARIZONA, *Pima Co.*, Mt. Lemmon, Marshall Gulch, 7400 feet, 20 July 1970 (T. W. Fisher and R. E. Orth) AS-867⁴. Allotype, wing 5.1 mm.; U. S. A., ARIZONA, *Pima Co.*, Mt. Lemmon, Summerhaven, 7750 feet, 20 July 1970 (T. W. Fisher and R. E. Orth) AS-868).

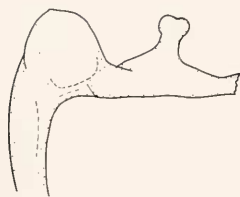
DEPOSITION OF MATERIAL.—Holotype and allotype, California Academy of Sciences, San Francisco, Type No. 11369, plus 1 M, 1 F paratype, c/o P. H. Arnaud, Jr. Paratopotypes, 1 F and 1 M to USNM,

⁴Field notes accession number.

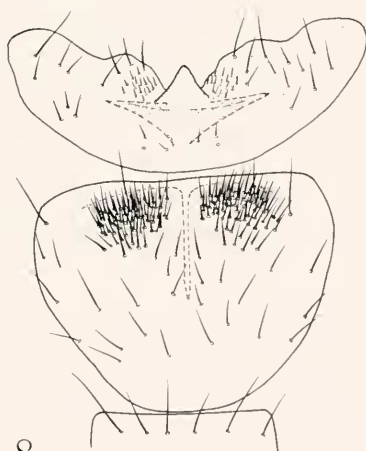


6

— 0.4 mm



7



8

FIGURES 6-8. *Limnia ottavensis* Melander. U.S.A., Arizona, Cochise Co., Southwest Research Station, 8 km. west of Portal, elevation 1645 m, 11 September 1966 (Paul H. Arnaud, Jr., C.A.S.). FIG. 6.—Postabdomen, sinistral view, inverted; aed, aedeagus; s, surstylus; vp, ventral process of hypandrium; V, 5th sternum. FIG. 7.—Protandrial sternum. FIG. 8.—Sterna IV and V.

plus 2 F and 2 M paratypes, c/o L. V. Knutson. Paratypes.—2 F and 2 M to University of Arizona, Tucson, c/o F. G. Werner. 2 F and 2 M to University of Idaho, c/o W. F. Barr. Reminder of paratypes to collection of University of California, Riverside.

PATRONYM.—This new species is named for J. G. Lemmon (1832-1908) a noted pioneer botanist of California and southwestern United States and also for whom Mt. Lemmon, the type locality in the Santa Catalina Mts. northeast of Tucson, was named.

HABITAT.—Locality records indicate that *L. lemmoni* occurs only above 5000 feet elevation. The specimens we collected were in a riparian mesophytic habitat, on sedges or grasses or other green vegetation somewhat removed from free running water and in moderate shade from evergreen or deciduous trees. At the Southwest Research Station *L. lemmoni* occurred with *L. ottawensis* Melander. We have collected *L. ottawensis* in large numbers in open unshaded habitats as in recently mowed green stubble at the edge of a permanent pasture.

DISCUSSION.—Attention is called to the striking similarity of the male terminalia of *L. lemmoni* and *Trypetoptera canadensis* (Macquart). The two genera are readily separated by antennal differences and other external characters, and *Trypetoptera* has a more northern distribution than is known for *L. lemmoni*. Yet on the basis of terminalia alone one is hard put to distinguish the two species.

Horizontal bands on the eyes were not apparent in the dried specimens we studied. However, during the relaxing procedures (exposure to warm moist air for 60 minutes) necessary to position the appendages on the specimen photographed in Figure 1, distinct bands appeared on the eyes and persisted until the specimen again dried about an hour later.

ACKNOWLEDGEMENTS.—Material was borrowed from University of Arizona (U.A.), University of California (Berkeley) (U.C.B.), University of Idaho (U.I.), and California Academy of Sciences (C.A.S.). Figure 1 photographed by Max E. Badgley, U. C. Riverside. Figures 2-8 drawn by R. E. Orth.

Our thanks to L. V. Knutson and G. C. Steyskal, Systematic Entomology Laboratory, U.S.D.A., for reviewing the manuscript.

LITERATURE CITED

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STEYSKAL, G. C. 1964. Two cases of abnormal development in male postabdomens of flies of the family Sciomyzidae (Diptera). Papers Michigan Acad. Sci., Arts, Letters 49: 195-198.

2.0110 A new species of *Limnia* Robineau-Desvoidy from Western North America (Diptera: Sciomyzidae).

ABSTRACT.—*Limnia lemmoni* Fisher and Orth, new species, occurs above 5000 feet elevation in the mountains of Arizona, Nevada, New Mexico and Utah, and seems to prefer a sparsely shaded riparian mesophytic habitat where it occasionally is sympatric with *L. ottavensis* Melander. The latter species, however, is often encountered in unshaded situations. Male terminalia of both species are figured, and attention is called to the curiously striking similarity of the terminalia of *L. lemmoni* and *Trypetoptera canadensis* (Macquart). The holotype and allotype of *L. lemmoni* are deposited at California Academy of Sciences, San Francisco.—T. W. FISHER and R. E. ORTH, *Department of Entomology, University of California, Riverside, CA 92502.*

Descriptors: Diptera; Sciomyzidae; *Limnia lemmoni*, new species from Arizona; *Trypetoptera canadensis*, terminalia.